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Editorial

This special issue is devoted to a selection of papers from the Applied Track of the Fourteenth Annual ACM Symposium on Computational Geometry, which took place on June 7–10 in Minneapolis, Minesota. 53 papers were submitted to the Applied Track. 19 of these were selected by the program committee, which was chaired by me and included Marshall Bern, Jean-Daniel Boissonnat, Fred Bookstein, Tamal Dey, Gershon Elber, Steve Fortune, Randy Franklin, Ken Goldberg, Leo Guibas, Christoph Hoffmann, Dinesh Manocha, Nick Patrikalakis, Francois Sillion and Steven Skiena.

The accepted papers covered data-structures and robust computational tools for 2D and 3D geometry and many application areas, including: assembly, motion, and manufacturing planning; shape analysis and deformation; pattern matching and surface reconstruction; mesh generation and refinement; and map labeling.

With the help of the committee, I have selected the best papers representing the diversity and quality of the applied track of the symposium for inclusion in this special issue of Computational Geometry: Theory and Applications. After a thorough peer-review evaluation process, I am proud to present the results.

Victor Milenkovic's paper extends his prior work on 2D packing to arbitrarily oriented polygons. The work has important applications for many manufacturing operations where it is important to reduce the scrap material left over from cutting out the desired shapes. The paper by Marc van Kreveld, Tycho Strijk and Alexander Wolff proposes an efficient technique for placing non-overlapping labels on maps. The paper by James Fix and Richard Ladner introduces a multi-resolution approach to the problem of interpolating planar cross-sections by a 3D triangle mesh. Lutz Kettner proposes effective C++ tools for representing polyhedra using a variation of the half-edge data structure.

These papers exemplify the spread of the theoretical and practical results developed by the computational geometry community to a variety of application areas. I hope that this trend continues and believe that it could be accelerated by the dissemination of easy to use computational geometry tools and by the publication of the fundamental results and useful techniques in places and formats that makes them easily accessible by people with no or little expertise in computational geometry.

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